# AP Microeconomics
# Test: Demand, Supply, Elasticity and Consumer Choice

## Instructor's Version

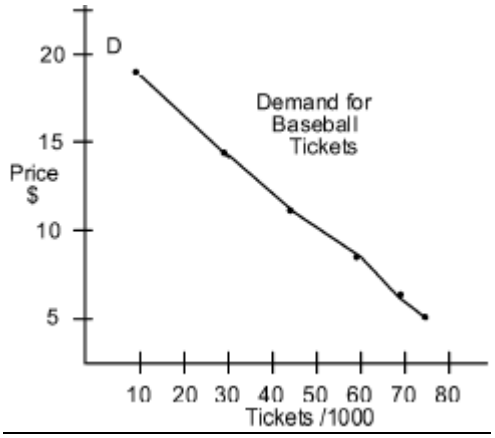
## Answers: Free-Response Questions

**1. Demand** (15 points total)

**A. Draw a graph of this hypothetical demand for baseball tickets.** (3 points)

| price | quantity demanded (in thousands of tickets) |
|---|---|
| $5 | 75 |
| $6 | 70 |
| $8 | 60 |
| $11 | 45 |
| $14 | 30 |
| $18 | 10 |

The student should have a graph with the axes clearly labeled, the scale shown, and the straight-line demand curve accurately drawn.




*Take off one point for missing each of the following, up to 3 points off: price axis label, quantity axis label, straight-line demand curve, the intercept of $16, and the demand curve label*

**B. Give an example of something that might increase the demand for baseball tickets. Explain in words, and show the increase on a new graph.** (3 points)

Anything that causes an increase in demand is acceptable, but the answer must be specific for baseball tickets. The graph should show a rightward shift of the demand curve.

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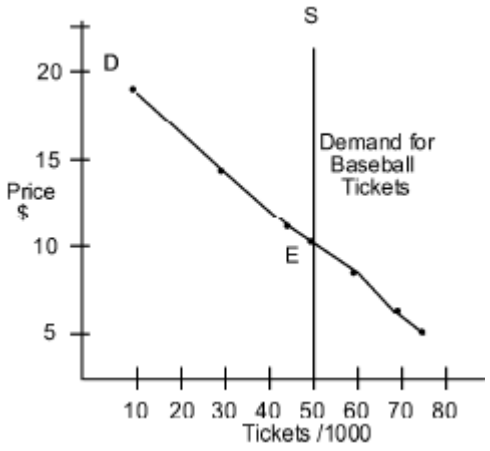
*One point for the graph, one point for the stating something that increases demand, and one point for giving a baseball example*

**C. If supply is perfectly inelastic at 50,000, what will be the equilibrium price? Explain your answer, and show it graphically.** (3 points)

A perfectly inelastic supply curve is a vertical supply curve. The equilibrium price is where quantity supplied equals quantity demanded. The student should show a perfectly inelastic demand curve at 50,000 and the intersection of supply and demand as the equilibrium. The equilibrium price is $10.




*2 points for the graph showing a vertical supply curve and equilibrium at $10 and 50,000 tickets. 1 point for explaining either that the perfectly inelastic supply curve is vertical at 50,000 or that equilibrium occurs where quantity demanded equals quantity supplied.*

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**D. What is the price elasticity of demand between $6 and $8 dollars? Show your work. Is demand elastic or inelastic?** (3 points)

elasticity = % change $Q^D$ / % change P = (10/65)/(2/7) = 7/13 = 0.54
Demand is inelastic.

*one point for correct equation for elasticity, 1 point for correct calculation given the equation the student used (in other words, if they correctly apply an incorrect equation, they get one point), and one point for saying demand is elastic or inelastic, based on their answer (again, if they get the previous part of the question wrong, they may come up with inelastic or elastic; they should get a point if they correctly apply the theory to their answer.)*

**E. If the price of tickets rose from $13 to $14, what would happen to the demand for hot dogs at the ballpark? Explain in words, and show your answer graphically.** (3 points)

The demand for hot dogs, a complement good, would decrease. The graph should show a picture of the demand for hot dogs, and a leftward shift of the demand curve.

*1 point for saying the demand for hot dogs would decrease; 1 point for showing on the demand curve graph the leftward shift; and 1 point for using the word "complement" in the explanation*

**2. Supply** (15 points)

**A. Draw a hypothetical supply curve for golf balls. Label your graph completely.** (3 points)

This should be a supply curve, with the axes labeled.

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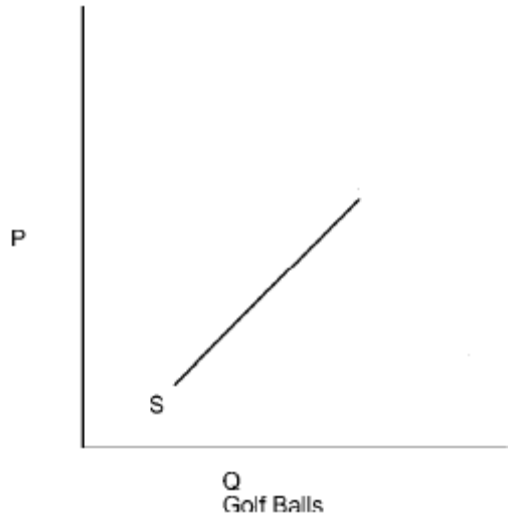


*Take off one point for missing each of the following, up to three points total: the price axis label, the quantity axis label, the correct upward sloping shape for a supply curve, the label on the supply curve*

**B. Explain why supply curves slope upward in the direction they do. (The difference between a right and wrong answer here is subtle, but very important. Choose your words carefully.)** (6 points)

Supply curves slope upward to the right because higher prices are necessary to convince resource owners to produce more, since more production results in higher costs.

*2 points for recognizing that supply curves slope upward to the right; 2 points for recognizing that higher production results in higher costs of producing more; and 2 points for saying that resource owners require higher prices to convince them to produce more because the cost of producing more is increasing (this is really an argument using marginal analysis, without the student actually knowing or using that term — since the marginal cost of production increases as production increases, higher prices are necessary to get producers to produce more).*

**C. Give a specific example of something that might decrease the supply of golf balls. Explain in words, and show graphically.** (3 points)

Anything that decreases supply, though the example should be for the supply of golf balls. The student should show a shift of the supply curve to the left.

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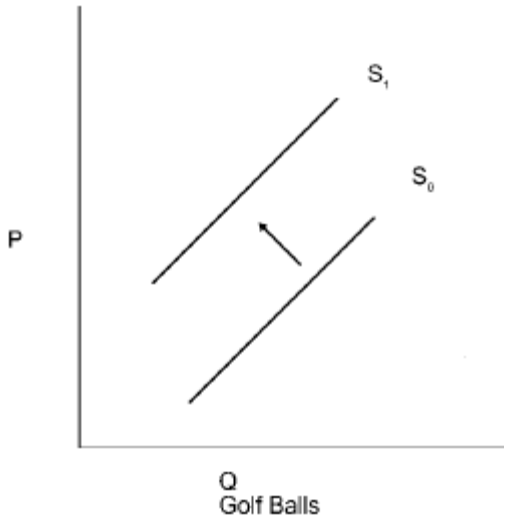


*One point for the leftward shift of the supply curve, one point for listing any of the things that decrease supply, and one point for using an example that pertains to golf balls.*

**D. Explain any one of the determinants of the elasticity of supply. Be sure to include an explanation of what elasticity of supply means, and how the determinant affects the value of elasticity.** (3 points)

The student can explain either substitutability or the issue of time.

Elasticity of supply measures the sensitivity of the supplier to a change in price — how much does the quantity supplied change when the price changes? Substitutability is one of the determinants. It refers to how easily the factors of production can be shifted away from the production of one good to the production of another. If the inputs are highly substitutable, then the supply will be very elastic. Time is the other determinant of elasticity. Given enough time, a firm will have a larger response to a price change. In the short run, when some factors of production are fixed, the firm will respond less to a price change. Therefore, in the long run, supply is more elastic.

*One point for correctly identifying one or the other determinant of elasticity of supply, one point for correctly explaining the determinant, and one point for indicating how the determinant affects elasticity of supply.*

**3. Equilibrium** (15 points)

**A. Draw hypothetical market demand and supply curves for mechanical pencils. Label all parts of the graph completely.** (3 points)

Graph should have the axes labeled properly, and demand and supply curves, with equilibrium labeled.

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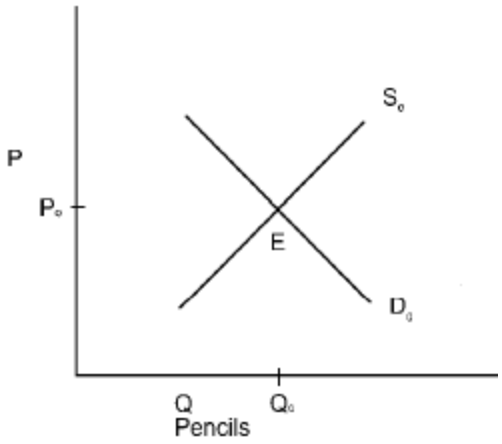
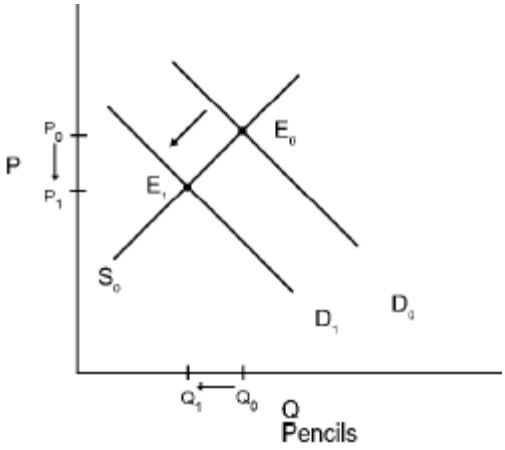



*Subtract one point for each of the following missing, up to three points: quantity axis label, price axis label, supply curve label, demand curve label, correct shape for supply curve, correct shape for demand curve, and the equilibrium price and quantity*

**B. Suppose the graphite refills for mechanical pencils become significantly more expensive. What happens to the demand and supply of mechanical pencils? Explain in words, and show your answer on a graph.** (3 points)

Lead refills are a complement, so the demand for mechanical pencils falls. This shifts the demand curve to the left, and the equilibrium price and quantity fall.




*One point for identifying that the effect is on demand, one point for correctly showing the shift of the demand curve, and one point for saying in words that the equilibrium price and quantity decrease*

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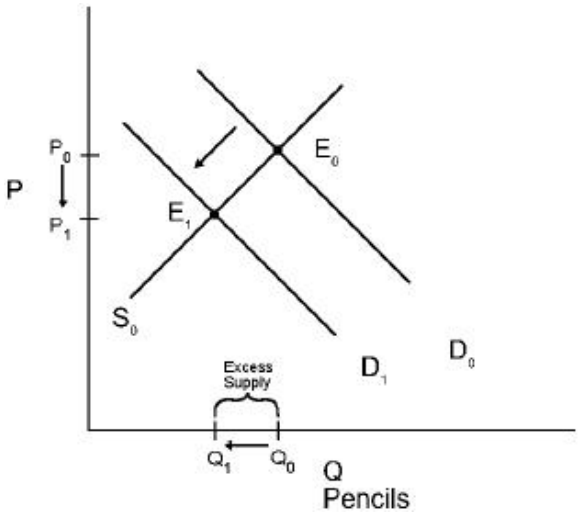
**C. When conditions change in a market, and either supply or demand or both are changed, the market automatically adjusts to a new equilibrium. Explain the adjustment process when demand decreases, and show your answer graphically.** (6 points)

A decrease in demand causes an excess supply at the original price. Suppliers see inventories build up, so they lower their price. As the price falls, the quantity that suppliers are willing to produce falls — they produce less. As the price falls, the amount the demanders purchase increases — quantity demanded increases. Eventually, the quantity supplied falls and the quantity demanded increases, until they are equal. Graphically, the demand decreases, and the market moves from the original equilibrium price, where there is an excess supply, to the new equilibrium price.




*2 points for the graph, showing the original equilibrium, the excess supply at the original price after demand decreases, and the movement to the new equilibrium. 2 points for saying in words that the shift in demand causes an excess supply at first. 2 points for explaining that the excess supply causes prices to fall until quantity supplied equals quantity demanded at the new lower equilibrium price.*

**D. Why would a price ceiling for mechanical pencils cause a shortage? Explain and show your answer graphically.** (3 points)

A shortage is caused by a price ceiling. If the government imposes a price ceiling on mechanical pencils, then the quantity demanded will be greater than the quantity supplied and we have a shortage. The student should show a price ceiling on the graph, with a price below the equilibrium price.

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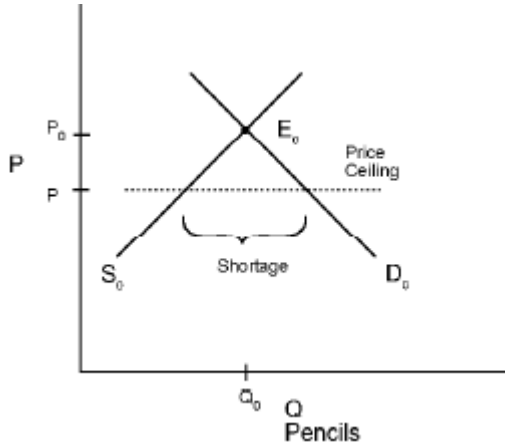


*1 point for identifying a price ceiling; 1 point for a graph showing a price ceiling below the equilibrium price, where quantity demanded is greater than quantity supplied, so there is a shortage. 1 point for explaining graph in words.*

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